

James A. Pierson Jr. N1SZ
Filed on Behalf of:
The Colorado Council of Amateur Radio Clubs
P.O. Box 24244
Denver, CO 80224
Board@CCARC.NET

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Subject: ET Docket No. 03-104 - Inquiry Regarding Carrier Current Systems, including
Broadband over Power Line Systems

Introduction:

The Colorado Council of Amateur Radio Clubs (CCARC) is an association of over thirty amateur radio clubs and organizations within the State of Colorado. One of the primary functions of the CCARC is to provide repeater coordination services throughout the state of Colorado. CCARC has collectively determined that the coordination of repeater systems is essential to maximize the finite spectrum resources allocated to amateur radio and minimize the interference between systems. In addition to coordination services, the CCARC is active in the preservation of the amateur frequency allocations.

Comments:

The CCARC feels that the proposed deployment of Broadband over Power Line Systems (BPL) as stated in the NOI – ET Docket No. 03-104 represents a significant interference threat to not only Amateur but also other incumbent HF spectrum users. While the CCARC understands the economic, and logistical reasons for the utilization of power lines as a transmission medium for providing service, the lack of measurement procedures to effectively understand and characterize the interference potential to incumbent spectrum users, represents the greatest threat. The CCARC recommends that the Federal Communications Commission carefully consider the issues in the following areas:

Protection of the Amateur Radio Service

The introduction of BPL using multiple carrier frequencies between 1.7 and 80 MHz spans 11 Amateur spectrum allocations. Based on the theoretical and actual measurements of BPL systems by Mr. Ed Hare of the American Radio Relay league; Mr. Hare has shown that BPL can introduce interference signals within the amateur band allocations that are as much as 70 dB above ambient noise floor for a given location.¹ Many of the communications modes utilized in the potentially “affected” allocations are “weak signal” modes (i.e. SSB, CW...etc). The introduction of “harmful” interference

¹ See *Calculated Impact of PLC on Stations Operating in the Amateur Radio Service* –Ed Hare, ARRL – Presented at the November 15,2002 C63 Committee Meeting, Rockville, MD - <https://www.arrl.org/tis/info/HTML/plc/files/C63NovPLC.pdf>

signals, in excess of 70 dB above the ambient noise floor, could render these frequencies unusable for communication.

Regulation of BPL under Part 15 Rules

Current Part 15 rules protect licensed spectrum users from “harmful” interference emanating from unlicensed devices operating under Part 15. In the same rules, Part 15 devices must tolerate interference from licensed spectrum users. It is not apparent to the CCARC that the BPL carriers and equipment manufacturers have carefully considered the statement, “...that interference must be accepted that may be caused by the operation of an authorized radio station, by another intentional or unintentional radiator, by industrial, scientific and medical (ISM) equipment, or by an incidental radiator.”². Understanding that the transmission medium for BPL (power lines) are effective antennas, it is possible that large amounts of interference can be emitted by BPL carriers through this transmission medium affecting licensed users, in direct violation of Part 15. In addition to the fact that BPL can radiate interference through the power lines, the potential exists that BPL carriers and customers can suffer from interference from licensed radio spectrum users. How will the BPL carriers and BPL customers respond to interference that may be generated by licensed users? Without careful consideration of the operational characteristics of a BPL system, the potential exists that any and every licensed HF spectrum user may cause interference to BPL. In this case, with over 650,000 licensed Amateur Radio operators in the United States (many of which have HF operating privileges), it is reasonable to assume under Part 15 operation, the BPL customers will receive interference and they will have no recourse. With no recourse, one can easily assume that valid HF spectrum users, operating under the guidelines of their licenses, will be faced with overwhelming scrutiny from dissatisfied BPL customers affected by interference. At this point, Part 15 and the introduction of BPL will have created a hostile situation between licensed spectrum users and BPL customers, putting neighbors and businesses up against amateur radio operators and other HF spectrum users. With a lack of technical recourse, will “Big Business” force Amateur Radio Operators, operating within the bounds of their federal license specification, into court to defend against frivolous lawsuits? If so, Amateur Radio operators will be forced to defend their operations, at great expense, against corporations with large financial capabilities, who have no legal basis for their cases.

Homeland Security

Without adequate protection of the amateur spectrum and other spectrum allocations related to national security, the interference generated by BPL will severely impact the communications of our nation’s military, law enforcement, public service organizations and Amateur Radio Service volunteers. In doing such, the FCC will have effectively diminished the ability for the Amateur Radio Service to provide critical and life saving communications in times of national disasters, such as the events of September 11, 2001 or in the case of a natural disaster. Many communities and agencies have turned to the

²See 47 C.F.R. § 15.5 - General conditions of operation

Amateur Service to provide vital communications in times of need. As recent as the summer of 2002, the State of Colorado suffered several large wildfires. These wildfires destroyed hundreds of thousands of acres of land including many communities and homes. Throughout the fires, various Amateur Radio Service organizations provided vital communications between firefighters, command and control centers and Red Cross shelters. Due to the large scale of the fires and mountainous terrain, traditional VHF and UHF frequencies did not always allow for the highest reliability communications. In several instances, HF frequencies were utilized to aid in the protection of life and property due to the poor environmental conditions that did not favor VHF or UHF frequencies. Without adequate protection from BPL, it is conceivable that the interference generated by BPL would have severely or even completely degraded the effectiveness of the Amateur Service communications capability.

As recently as June 24, 2003 the Department of Homeland Security has officially designated the ARRL as an official affiliate into the Citizen Corps program.³ This program affiliation is tasked with raising the public's awareness of Amateur Radio as a safety resource. In doing such, the Amateur Radio Service has been called "First of the First Responders"⁴ by a Department of Homeland Security official. This action by the Department of Homeland security has identified the significant value that the Amateur Service offers the citizens of the United States. The Amateur Service has always been ready to provide reliable communications in times of need from providing communication assistance during a city wide 911 blackout to relaying an SOS message to the Coast Guard on behalf of a vessel in distress. Regardless of the application or instance, any degradation of the Amateur spectrum allocations due to potential interference from BPL, is a degradation of the Homeland Security of the United States.

Summary

In review of technical information provided by the ARRL⁵ regarding the operation of BPL in other countries such as Austria, Japan and Sweden, the CCARC recognizes the need to protect incumbent HF spectrum users, including the Amateur Service allocation against harmful interference. The CCARC respectfully requests the Federal Communication Commission to carefully consider the impact of any change to Part 15 rules with respect to BPL, on Amateur Radio spectrum allocation. As recognized by the FCC, the need to accurately measure the impact of interference generated by BPL in the HF spectrum should be paramount to any deployment pressure from the BPL industry. Any attempt to expedite the deployment of BPL without careful consideration and review of Part 15 rules will result in harmful interference to incumbent spectrum users. Any introduction of harmful interference within the Amateur spectrum allocations by the Commission's failure to properly characterize the interference potential of BPL, will

³ See <http://www.arrl.org/news/stories/2003/06/24/2/?nc=1>

⁴ Liz DiGregorio, liaison to the White House for Citizen Corps addresses an overflow audience at the SoA signing June 21 in Dallas. - See <http://www.arrl.org/news/stories/2003/06/24/2/?nc=1>

⁵ See <https://www.arrl.org/tis/info/HTML/plc/>

directly diminish the capabilities of the Department of Homeland Security and the Amateur Radio Service.

Respectfully Submitted on Behalf of the Colorado Council of Amateur Radio Clubs,

James A. Pierson Jr, N1SZ
Regulatory Advisor for the CCARC